SONY

CAMERA CONTROL UNIT

CCU-900/900P

DIGITAL INTERFACE UNIT

BKP-9330

OPERATION MANUAL English

1st Edition (Revised 2)

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

AVERTISSEMENT

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écarter tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

VORSICHT

Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.

WARNING
THIS APPARATUS MUST BE EARTHED.

AVERTISSEMENT
CET APPAREIL DOIT ÊTRE RELIÉ À LA TERRE.

WARNUNG
DIESES GERÄT MUSS GEERDET WERDEN.

For customers in the USA (for CCU-900)
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.
If used in USA, use the UL LISTED power cord specified below.
DO NOT USE ANY OTHER POWER CORD.

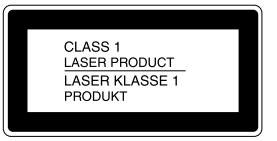
Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord	Type SJT, three 16 or 18 AWG wires
Length	Less than 2.5 m (8 ft. 3in.)
Rating	Minimum 10 A, 125 V

Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

For the customers in Europe (for CCU-900P)
This product with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.
Compliance with these directives implies conformity to the following European standards:
• EN60950: Product Safety
• EN55103-1: Electromagnetic Interference (Emission)
• EN55103-2: Electromagnetic Susceptibility (Immunity)
This product is intended for use in the following Electromagnetic Environment: E4 (controlled EMC environment, ex. TV studio).

Pour les clients européens (pour le CCU-900P)
Ce produit portant la marque CE est conforme à la fois à la Directive sur la compatibilité électromagnétique (EMC) (89/336/CEE) et à la Directive sur les basses tensions (73/23/CEE) émises par la Commission de la Communauté Européenne.
La conformité à ces directives implique la conformité aux normes européennes suivantes:
• EN60950: Sécurité des produits
• EN55103-1: Interférences électromagnétiques (émission)
• EN55103-2: Sensibilité électromagnétique (immunité)
Ce produit est prévu pour être utilisé dans l'environnement électromagnétique suivant: E4 (environnement EMC contrôlé ex. studio de télévision).

Für Kunden in Europa (für CCU-900P)
Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt sowohl die EMV-Direktive (89/336/EEC) als auch die Direktive Niederspannung (73/23/EEC) der EG-Kommission.
Die Erfüllung dieser Direktiven bedeutet Konformität für die folgenden Europäischen Normen:
• EN60950: Produktsicherheit
• EN55103-1: Elektromagnetische Interferenz (Emission)
• EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)
Dieses Produkt ist für den Einsatz unter die folgende elektromagnetische Bedingung ausgelegt: E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).



This camera control unit is classified as a CLASS 1 LASER PRODUCT.
The CLASS 1 LASER PRODUCT label is located on the rear panel.

Diese Kamerasteuereinheit ist klassifiziert nach LASER KLASSE 1 PRODUKT.
Das LASER KLASSE 1 PRODUKT-Label befindet sich auf der Rückseite.

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VORSICHT
Halten Sie sich bei der Bedienung, der Einstellung und beim Verwendungszweck an die Angaben in der Anleitung, da sonst Strahlungsgefahr besteht.

Laser Diode Properties

Material:	InGaAsP
Wave length:	1310 ±40 nm
Emission duration:	Continuous
Laser output power:	$141\,^{+37}_{-19}$ mW

Daten der Laserdiode

Material:	InGaAsP
Wellenlänge:	1310 ±40 nm
Emissionsdauer:	Kontinuierlich
Laser-Ausgangsleistung:	$141\,^{+37}_{-19}$ mW

Laserdiode data

Materiale:	InGaAsP
Bølgelængde:	1310 ±40 nm
Strålingsvarighed:	Kontinuerlig
Lasereffekt:	$141\,^{+37}_{-19}$ mW

Laserdiodens egenskaper

Material:	InGaAsP
Våglängd:	1310 ±40 nm
Strålningstid:	utan avbrott
Laseruteffekt:	$141\,^{+37}_{-19}$ mW

Laserdiodens egenskaper

Materiale:	InGaAsP
Bølgelengde:	1310 ±40 nm
Emisjonslengde:	Kontinuerlig
Laser utgangseffekt:	$141\,^{+37}_{-19}$ mW

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The CCU-900/900P Camera Control Unit is connected to a CCD video camera. It performs signal processing and provides an interface for external equipment.
The CCU-900/900P may be combined with a BVP-9500WS/9500WSP Super Motion Camera to establish a super motion camera system by attaching an optional BKP-9330 board.

The CCU-900/900P may be combined with an MSU-700A/750 Master Setup Unit (optional) or RCP-700-series Remote Control Panel (optional) to form a camera control system. Further, a system capable of controlling multiple video cameras may be made up by adding a CNU-500/700 Camera Command Network Unit.

The CCU-900/900P has the following features.

Multiple video inputs and outputs

The CCU-900/900P has three SDI (Serial Digital Interface) signal outputs, an SDI picture monitor output, and four component SDI signal inputs. The CCU-900/900P also has two analog waveform monitor outputs, two picture monitor outputs, and four return video inputs. It also has SDI AUX signal input and output, and analog video input and output for tele-prompter.

The input signal must be synchronized with the clock of the CCU-900/900P.

Adding a BKP-9330 board (optional) enables SDI superslow output.

External reference signals

The CCU-900/900P can be locked with an external reference signal. Either a sync signal or an SDI signal input to the SERIAL RET INPUT 1 connector may be used as the reference signal.

Optical digital transmission

The CCU-900/900P can be connected to a camera using an optical-fiber cable (two single-mode optical-fiber lines, two power lines, and two control lines) for transmission of digitized video, audio, and control signals. By connecting multiple 250-meter (820-foot) optical-fiber cables, signals may be transmitted up to 3,000 meters (1.86 miles). The maximum cable length for supplying power to the camera varies with the camera system configuration and with the type of optical-fiber cable.

Safety-oriented power supply

The CCU-900/900P is designed for safety. When the power is turned on, a low voltage is supplied at first. Only after it has been verified that an appropriated camera is attached, the normal 240 V power supply is activated. The power is not supplied unless a camera is connected via an optoelectric cable.
Also, the CCU-900/900P is equipped with an alarm indicator to warn of open or short circuits in the cable.

Wide range of audio functions

The CCU-900/900P has connectors for two-channel microphone output, a digital audio output, and a program audio input. Further, the CCU-900/900P can use an intercom system with two independent channels. An SDI embedded audio signal can be used for the microphone output connectors, and for the program audio input connector. For information on support for RTS and CLEARCOM systems, contact a Sony service representative.

Remote control

The levels and phases of CCU-900/900P output signals can be controlled remotely using an MSU-700A/750 Master Setup Unit.

Microphone volume control

The camera’s microphone volume can be controlled via the MIC REMOTE or INCOM REMOTE connector.

Red and green tally output

Red tally and green tally signals can be output from the MIC REMOTE connector.

Character signal output

The results of the CCU-900/900P self-diagnosis can be output as text display.

Rack mountable

The CCU-900/900P can be installed in a standard EIA 19-inch rack (three units high).

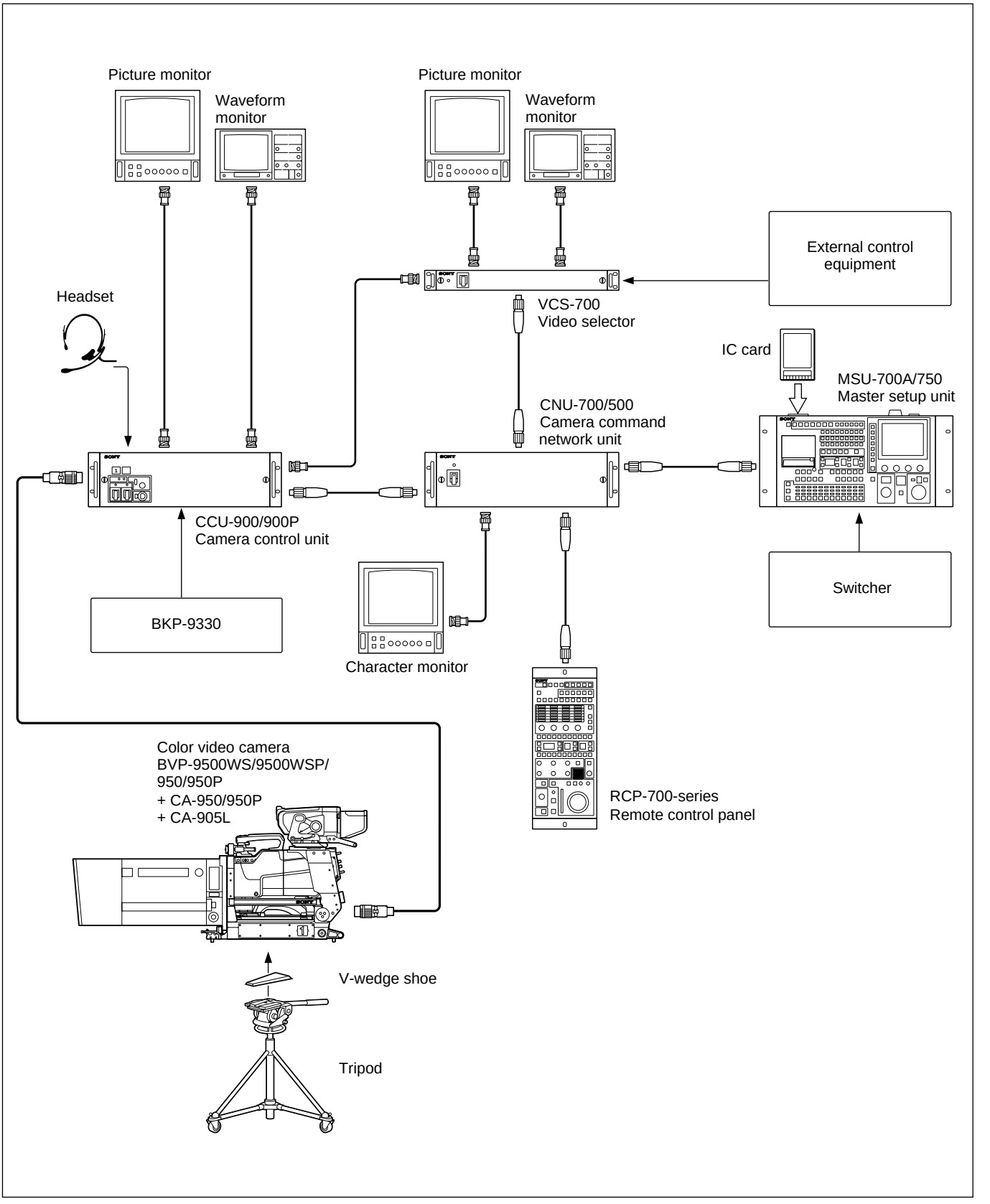
Plug-in unit configuration

Internal printed circuit boards are designed for easy plug-in and removal. The power supply is also a plug-in type unit, for easy inspection and maintenance.

Dual camera system configurable

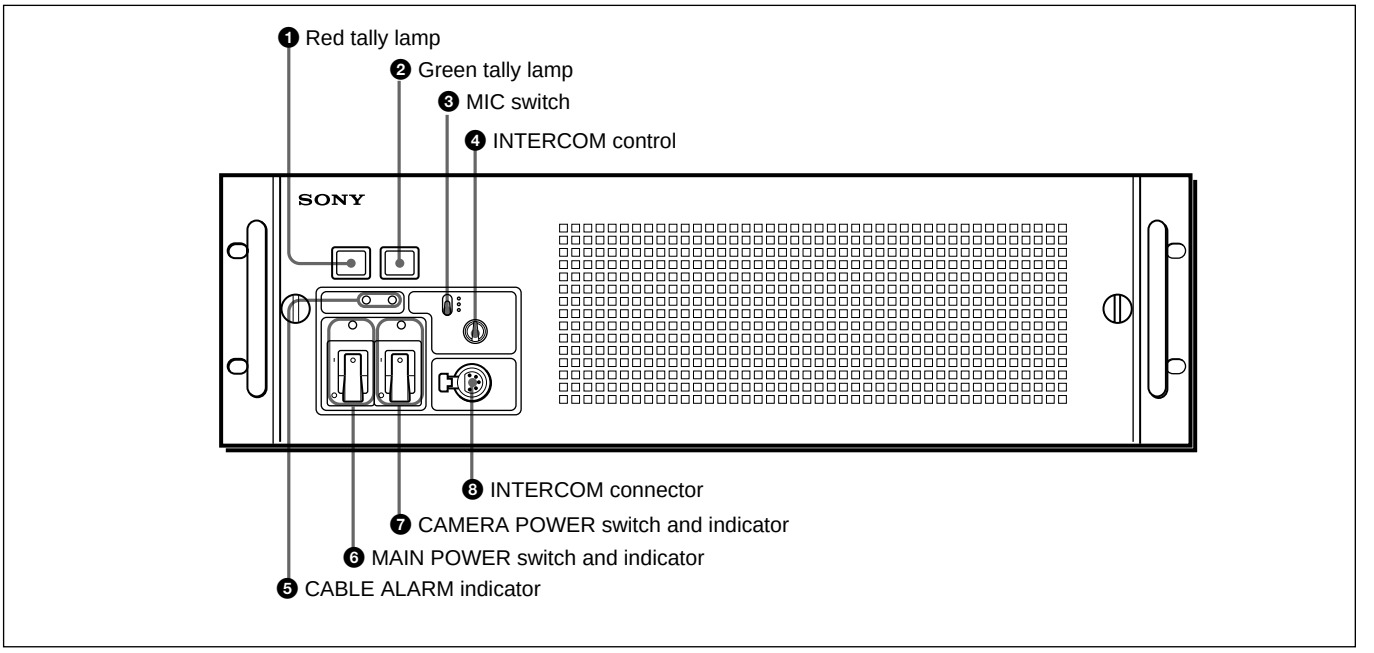
Mutually connecting SDI AUX inputs and outputs of two cameras enables establishing a dual camera system with an optical-fiber cable.

System Configuration Example



Location and Function of Parts

Front Panel



❶ Red tally lamp
Lights when a red tally signal is received. When the CALL button on the video camera, Master Setup Unit MSU-700A/750, RCP-700-series Remote Control Panel, etc. is pressed, this lamp will go out if previously lit, and light up if previously off. A supplied number plate can be mounted here.

❷ Green tally lamp
Lights when a green tally signal is received. A supplied number plate can be mounted here.

❸ MIC (microphone selection) switch
Used to select the type of headset microphone being used, or to turn microphone input off.
DYNAMIC: for a dynamic microphone
OFF: turns microphone input off
CARBON: for a carbon microphone

❹ INTERCOM (intercom volume adjustment) control
Adjusts the intercom input level.

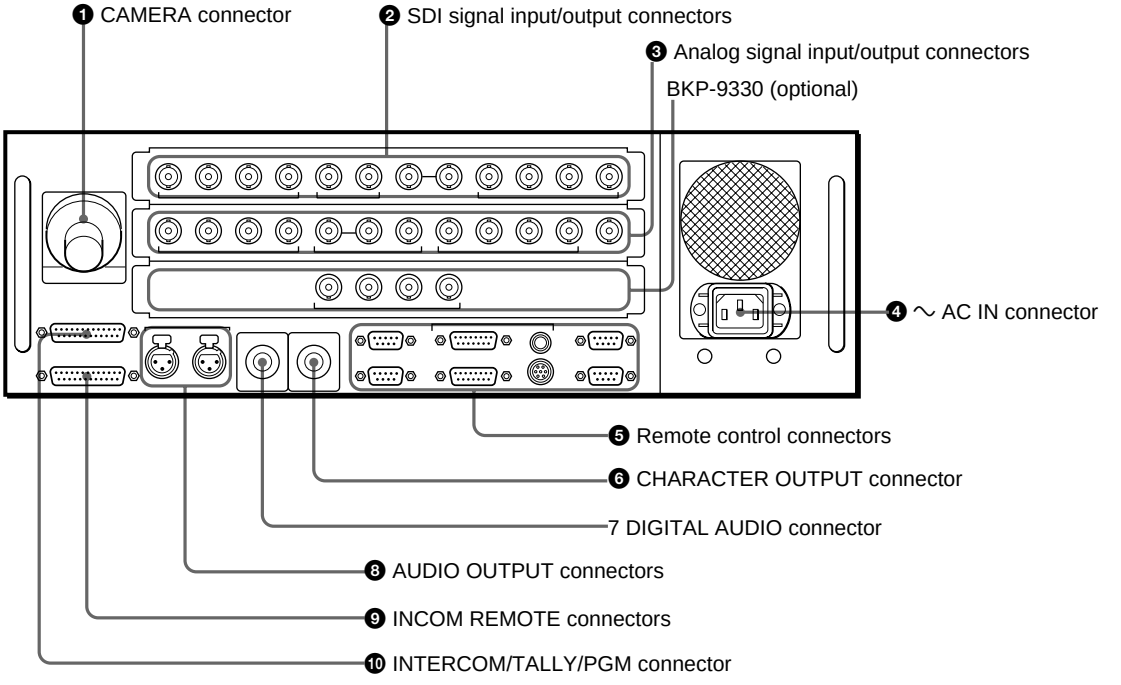
❺ CABLE ALARM indicator
SHORT: This indicator lights when there is a short circuit between a power supply line and the sheath of the optical-fiber cable, or when the two power-supply lines are shorted. When this indicator lights, the power supply is shut off. (If the optical-fiber cable is long, this indicator may light for a few seconds after the main power is turned on until the short-circuit detection circuitry begins operating normally. This is not a malfunction.)
OPEN: Lights when there is no camera connected via an optical-fiber cable to the CAMERA connector on the rear panel.
The indicator blinks slowly when reception of light is in WARNING status, and blinks fast when it is in CARE status.

❻ MAIN POWER switch and indicator
Turns on/off the power to the entire system, consisting of the CCU-900/900P, a video camera, an RCP-700-series Remote Control Panel connected via the REMOTE connector, etc. Setting the switch to the | position turns the power on, and setting it to ○ turns it off. The indicator is lit when the power supply is on.

❼ CAMERA POWER switch and indicator
Turns on/off the power to the camera when the MAIN POWER switch is on. Setting the switch to the | position turns the power on, and setting it to ○ turns it off.
When a remote control panel is connected and the power supply is turned off with the CAM PW button on the remote control panel, this switch alone cannot be used to turn on the power of the video camera.

❽ INTERCOM connector (XLR 5-pin)
For connecting a headset. To use a headset with a plug other than an XLR 5-pin plug, consult a Sony service representative.

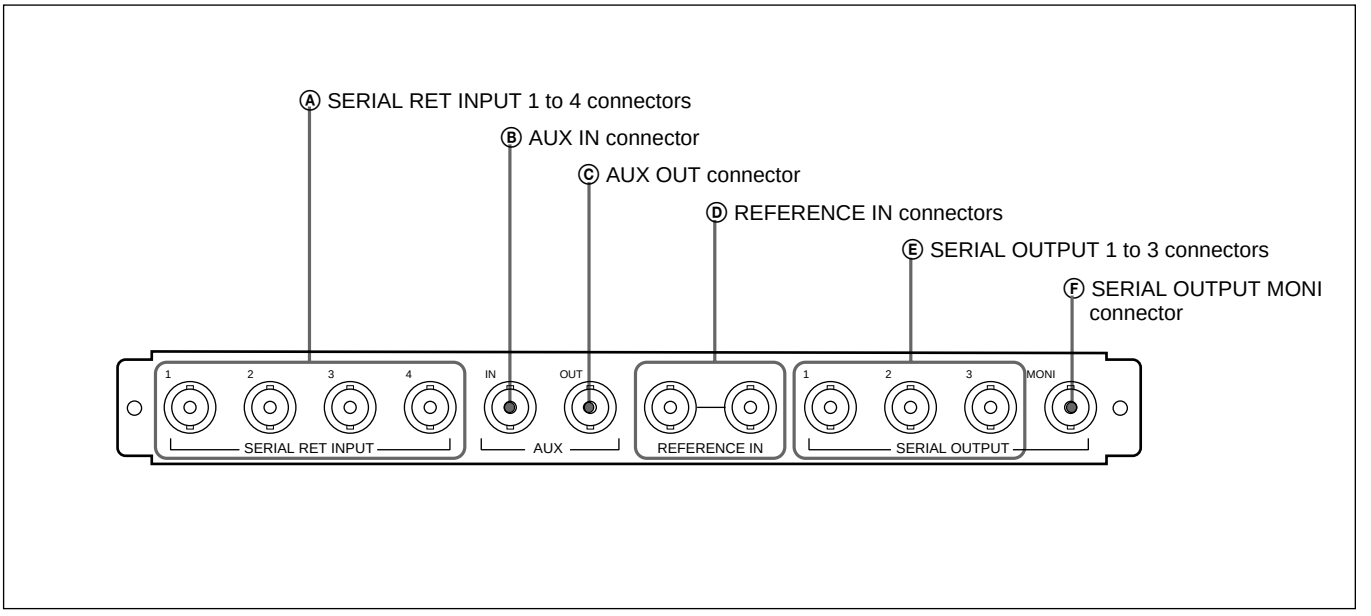
Rear Panel



❶ CAMERA connector (optical-fiber connector)
For connecting a video camera, using an optical-fiber cable such as the FC2-PD50/PD250. All video camera signals, including power supply, control, video, and audio, are sent and received with an optical-fiber cable.

Note
Dust on the connection surface of the optical-fiber cable may result in transmission errors. When not connected, always cover the end with the supplied cap.

❷ SDI signal input/output connectors



Ⓐ SERIAL RET INPUT 1 to 4 (SDI return video 1, 2, 3, and 4 input) connectors (BNC-type)

Four SDI return video signals are received independently. The selection of RET 1, 2, 3, or 4 is made using the return video switch on the camera. The signals assigned to RET 1, 2, 3, and 4 are selected using the setup menu of the CCU-900/900P, or using the MSU-700A/750 Master Setup Unit, from among the SDI, analog, SDI AUX, and PROMPTER.

Ⓑ AUX IN (auxiliary input) connector (BNC-type)

For inputting an SDI video signal.
The input signal is output via the AUX OUT connector. It is also possible to assign the signal to RET 1, 2, 3, and 4 using the setup menu of the CCU-900/900P.
For dual camera operation, the primary and secondary CCUs are connected using the AUX IN/OUT connectors mutually.

Ⓒ AUX OUT (auxiliary output) connector (BNC-type)

Outputs the signal that is input via the AUX IN connector.

Ⓓ REFERENCE IN (reference input) connectors (BNC-type)

Used to input a reference signal (sync or VS signal) for an external sync operation. Terminate the unused connector with a 75-ohm terminator.

Ⓔ SERIAL OUTPUT 1 to 3 connectors (BNC-type)

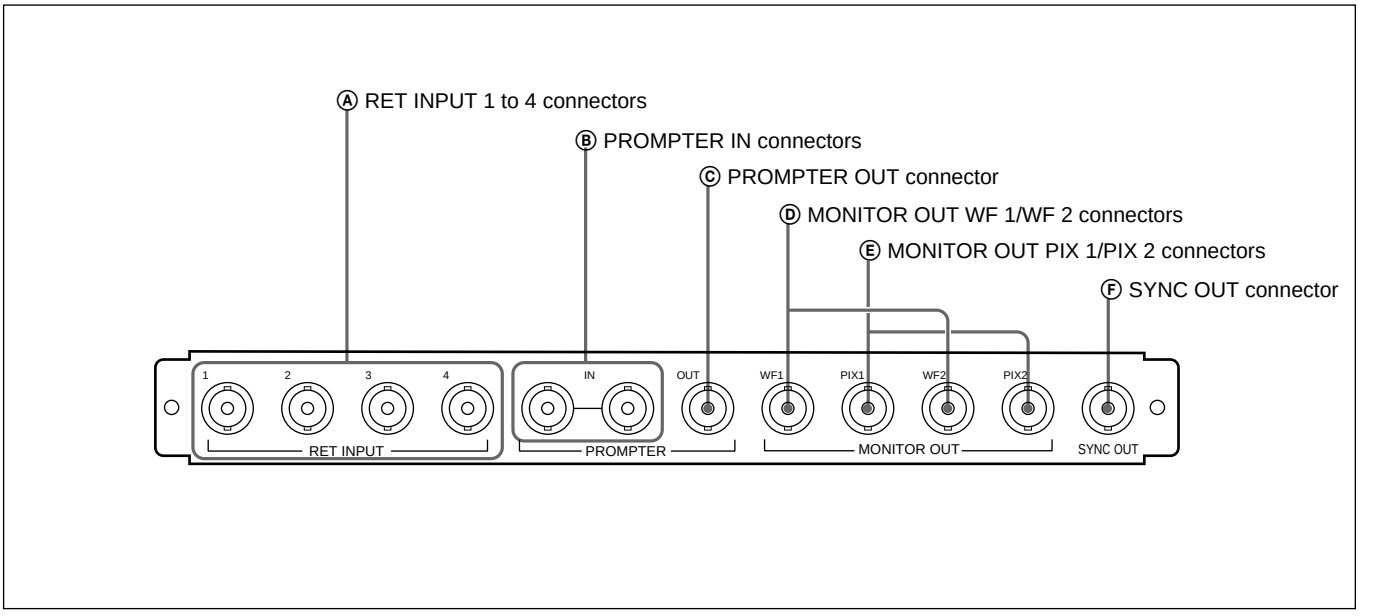
The signal from the video camera is output as three SDI signals.
If the BKP-9330 is installed, mixed signal of triple-speed signals sent from the BVP-9500WS/9500WSP are output through these connectors. Mixing is set to ON or OFF with the VPR-57 board of this unit or the MSU-700A/750 Master Setup Unit.

Ⓕ SERIAL OUTPUT MONI (SDI monitor output) connector (BNC-type)

The signal from the video camera mixed with the character signal, skin-tone gate signal, and 4:3 marker signal is output as an SDI signal.

Mixing is set to ON or OFF with the RCP-700 series or MSU-700A/750 Master Setup Unit.

❸ Analog signal input/output connectors



Ⓐ RET INPUT 1 to 4 (return video 1, 2, 3, and 4 input) connectors (BNC-type)

Four analog return video signals are received independently. The selection of RET 1, 2, 3, or 4 is made using the return video switch on the camera. The signals assigned to RET 1, 2, 3, and 4 are selected using the setup menu of the CCU-900/900P, or using the MSU-700A/750 Master Setup Unit, from among SDI, analog, SDI AUX, or PROMPTER.

Ⓑ PROMPTER IN connectors (BNC-type)

Used for prompter signal input. Terminate the unused connector with a 75-ohm terminator. An analog signal of 1.0 Vp-p, 75-ohms is output via the PROMPTER OUT connector of a video camera with a frequency bandwidth of 5 MHz, regardless of signal format.

Ⓒ PROMPTER OUT connector (BNC-type)

Outputs the signals that are input via the PROMPTER IN connectors of the CCU-900/900P.
These are analog signals of 1.0 Vp-p, 75 ohms.

Ⓓ MONITOR OUT WF 1/WF 2 (waveform monitor output 1/2) connectors (BNC-type)

Used for outputting a video signal for the waveform monitor selected with the MONITOR SELECT button on the RCP-700-series Remote Control Panel or the WF MONITOR button on the MSU-700A/750 Master Setup Unit.

For information about these operations, refer to the Operation Manual supplied with the Master Setup Unit or Remote Control Panel.

Ⓔ MONITOR OUT PIX 1/PIX 2 (picture monitor output 1/2) connectors (BNC-type)

Used for outputting a video signal for a picture monitor selected with the MONITOR SELECT button on the RCP-700-series Remote Control Panel, or the PICTURE MONITOR button on the MSU-700A/750 Master Setup Unit.

For information about these operations, refer to the Operation Manual supplied with the Master Setup Unit or Remote Control Panel.

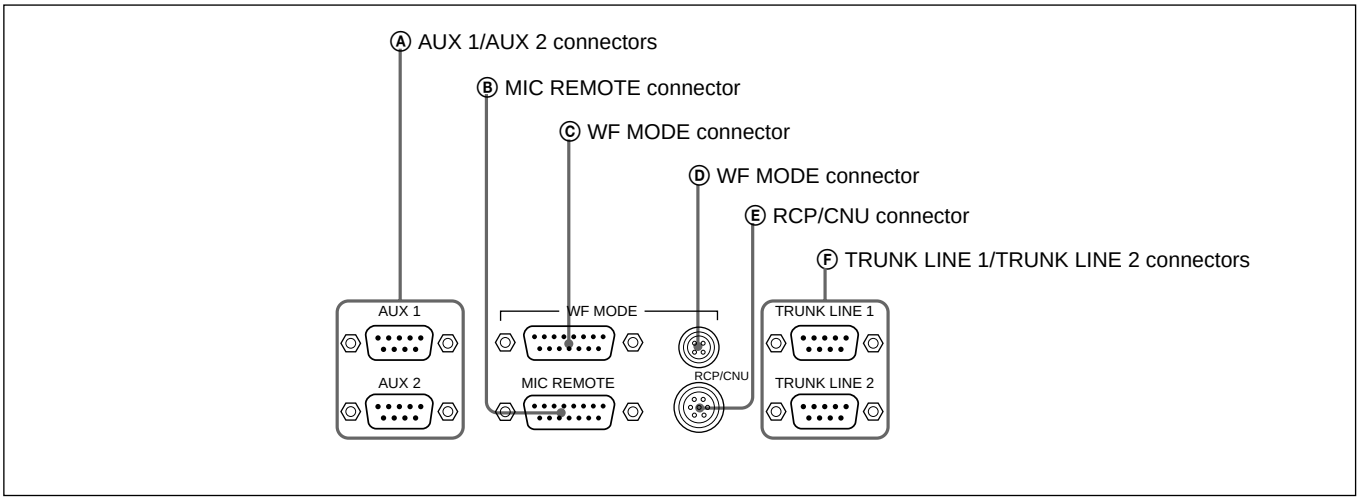
Ⓕ SYNC OUT (sync signal output) connector (BNC-type)

Used for outputting a composite sync signal from the internal sync signal generator.

❹ ∼AC IN (AC power supply input) connector

Connect to an AC power supply using the supplied AC power cord. The power cord is fixed to the CCU-900/900P using the supplied plug holder.

❺ Remote control connectors



Ⓐ AUX 1/AUX 2 (auxiliary 1/auxiliary 2) connectors (D-sub 9-pin, RS-422)

Used to connect the CCU-900/900P and external equipment via an RS-422 interface.

Ⓑ MIC REMOTE (microphone remote) connector (D-sub 15-pin)

Using this connector, the video camera's microphone input level may be set from external equipment such as an audio mixer in five steps (–60, –50, –40, –30, and –20 dB). When recording, set the volume to an appropriate level for the audio conditions.
Outputs red and green tally signals.

The microphone input level can be set using switches on an internal board. For more information on setting the switches, contact a Sony service representative.

Ⓒ WF MODE (waveform monitor mode) connector (D-sub 15-pin)

Used to connect a cable from the appropriate connector on a waveform monitor when operating the waveform monitor display using an MSU-700A/750 Master Setup Unit or RCP-700-series Remote Control Panel. When using a recall-type monitor, preset a display mode on the waveform monitor, and then recall the mode externally.

Ⓓ WF MODE (waveform monitor mode output) connector (4-pin)

Used to connect a cable from the appropriate connector on a waveform monitor when monitoring a signal in sequential mode. A sequence signal will be output when the SEQ button on the RCP-700-series Remote Control Panel is pressed, allowing simultaneous monitoring of the R, G, and B signals in sequential mode.

For information about these operations, refer to the Operation Manual supplied with the Remote Control Panel.

Ⓔ RCP/CNU connector (8-pin)

Used to connect to an MSU-700A/750 Master Setup Unit, CNU-500/700 Camera Command Network Unit, or RCP-700-series Remote Control Panel using a CCA-5 Connection Cable. Control signals are sent and received via this connector. When using an RCP-700-series unit, power is also supplied.

Ⓕ TRUNK LINE 1/TRUNK LINE 2 connectors (D-sub 9-pin, RS-232C)

Used to connect the CCU-900/900P to the TRACKER connector (20-pin) on a CA-950/950P Camera Adaptor via an RS-232C interface. Used mainly for communication with equipment on the camera side. The RXD, TXD, RTS, and CTS signals can be transferred at up to 9600 bps using this connector. The TRUNK LINE 2 connector is provided for extension.

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❻ CHARACTER OUTPUT (character signal output) connector (BNC-type)

Used to output the results of the CCU-900/900P diagnostic self-test and menu display in black-and-white analog video format.

❼ DIGITAL AUDIO (digital audio signal output) connector (BNC-type)

Used to output a digital audio signal input to the camera, or for output of the microphone signal converted to an AES/EBU-format digital audio signal.

❽ AUDIO OUTPUT (audio signal output) connectors (XLR 3-pin)

Used to output the microphone signal or audio signal input to the video camera.

❾ INCOME REMOTE (intercom remote) connector (D-sub 25-pin)

Enables remote operation such as muting the intercom, break-in from the producer or from engineers by sending signals through this connector from external control equipments.
Outputs red tally signal, green tally signal, tally call signal, and camera number signal.

For information on installation, contact a Sony service representative.

❿ INTERCOM/TALLY/PGM (program) connector (D-sub 25-pin)

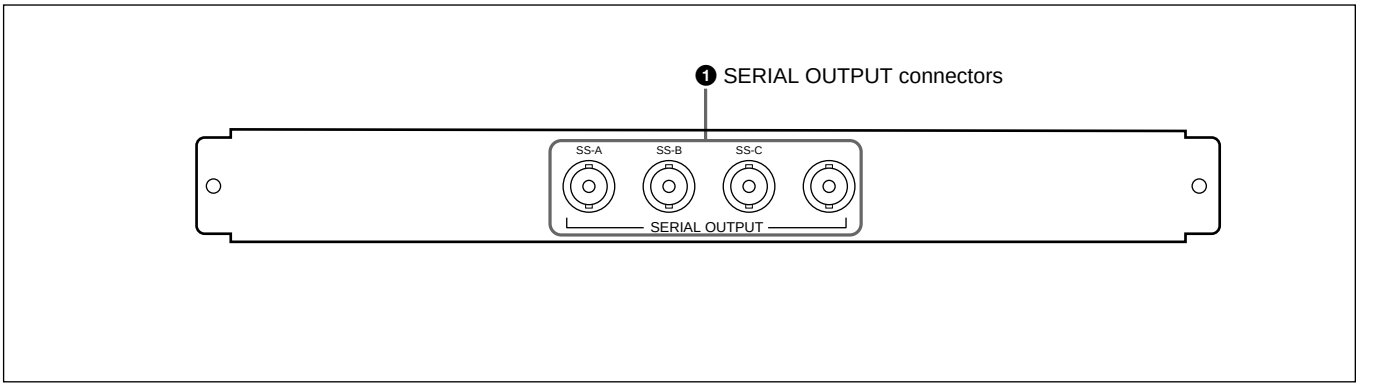
Used for input and output of intercom, tally, and program audio signals. Connect the cable from the intercom/tally/program connector of the intercom system.

For information on using with an RTS intercom system, contact a Sony service representative.

BKP-9330 (optional)

A BKP-9330 board can be mounted in the extension slot of the CCU-900/900P.

For information on installation, contact a Sony service representative.

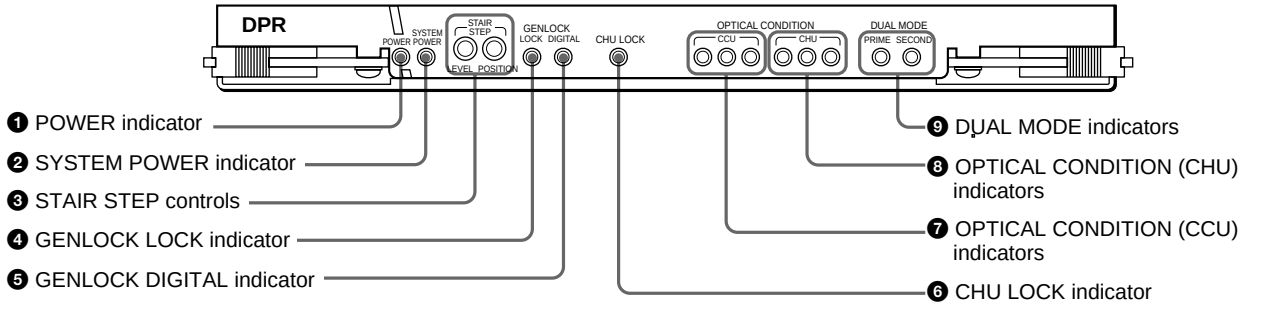


❶ SERIAL OUTPUT (SS-A, SS-B, SS-C) connectors (BNC-type)

Outputs a triple-speed signal from the BVP-9500WS/9500WSP Super Motion Camera via the A, B, and C connectors as an SDI signal.
For the super-slow output format, it is enabled to set the output format for an MAV-555 with a BKMA-520SS installed or for the SLMS of the EVS.
The output format is changed using switches on the VPR board.
The rightmost connector is a supplementary connector.

Internal Board

DPR-69 board



❶ POWER indicator
Lights when the board is supplied with proper power.

❷ SYSTEM POWER indicator
Lights when the system is supplied with proper power.

❸ STAIR STEP controls
For controlling the staircase signal to display the signal on a waveform monitor in sequential mode.

❹ GENLOCK LOCK indicator
Lights when the system is locked with an external sync signal.

❺ GENLOCK DIGITAL indicator
Lights when the sync signal is DIGITAL.

❻ CHU LOCK (camera head unit lock) indicator
Lights when communication with the connected camera is normal.

❼ OPTICAL CONDITION (CCU) indicators
Indicate the light level received by the CCU-900/900P. (0 dBm = 1 mW)

Green lit: normal (optical level not less than –17 dBm)
Yellow lit: normal (optical level between –17 dBm and –20 dBm)
Red lit: not normal (optical level less than –20 dBm)

Note

Clean the optical connector or optical cable if the red indicator lights.
Cleaning is recommended if the yellow indicator lights.

For method of cleaning, refer to the maintenance manual.

Reference

The signal level is reduced 0.5 dB for every 1 km of optical cable.
It is reduced 0.5 dB for every cable connector.

❽ OPTICAL CONDITION (CHU) indicators
Indicate the light level received by the Camera. (0 dBm = 1 mW)

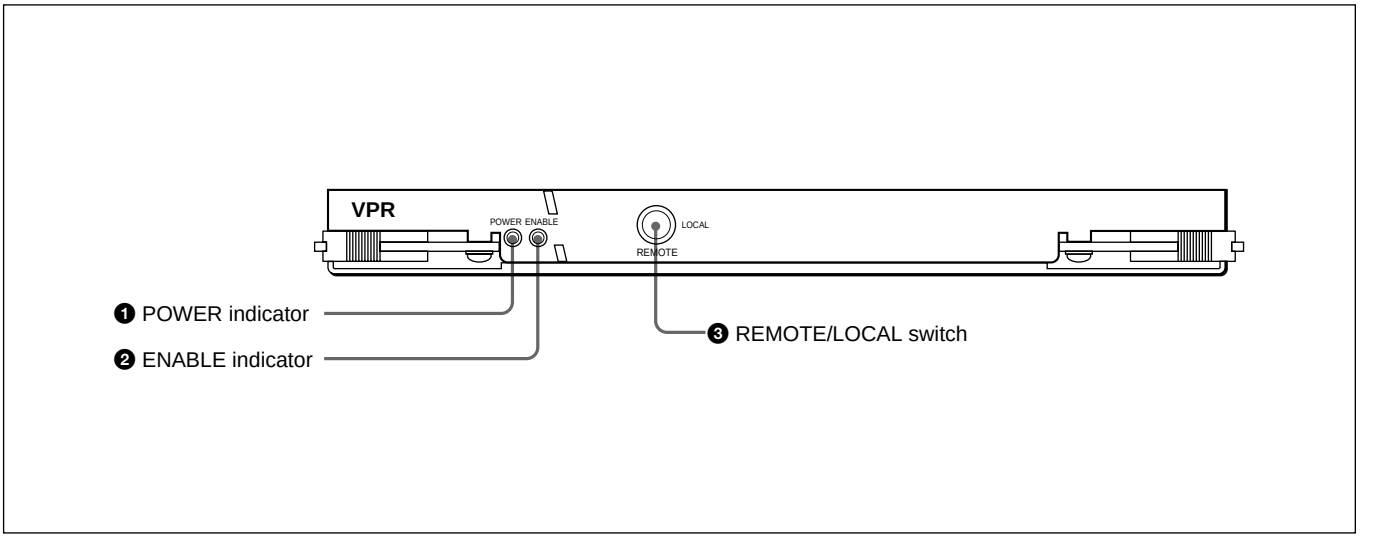
Green lit: normal (optical level not less than –17 dBm)
Yellow lit: normal (optical level between –17 dBm and –20 dBm)
Red lit: not normal (optical level less than –20 dBm)
All indicators off: abnormal communication with the camera (CHU LOCK indicator also off)

Note

Clean the optical connector or optical cable if the red indicator lights.
Cleaning is recommended if the yellow indicator lights.

❾ DUAL MODE indicator
Indicates the setting of the CCU when used in dual camera mode.

VPR-57 board

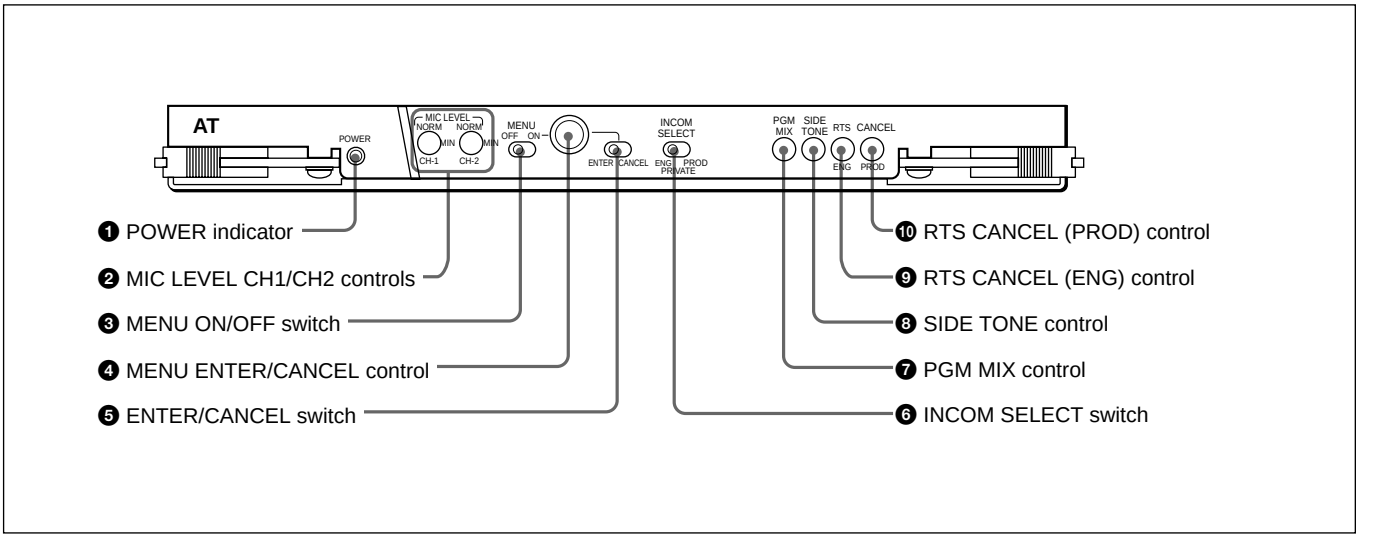


❶ POWER indicator
Lights when the board is supplied with proper power supply.

❷ ENABLE indicator
Lights when the VPR board is in operation.

❸ REMOTE/LOCAL switch
For setting the mode, normal (frame interporation) or triple speed on the VPR board.
REMOTE enables setting from the MSU-700A/750.

AT-122 board



❶ POWER indicator
Lights when the board is supplied with proper power supply.

❷ MIC LEVEL CH1/CH2 (CH1/CH2 microphone level) controls
For controlling the input level of the MIC connector of the camera in steps of 10 dBu between –60 dBu and –20 dBu.

❸ MENU ON/OFF switch
For switching ON/OFF the setup and engineering menus of the CCU.
When the switch is set to ON with the MENU ENTER/CANCEL control held pressed, the engineering menu is displayed.

❹ MENU ENTER/CANCEL control
For selecting menu items and changing the values. When pressed, it functions as ENTER.

❺ ENTER/CANCEL switch
For registering or cnaceling the selected item in a menu operation. Turning the switch to ENTER enables the same function as pressing the MENU ENTER/CANCEL control.

❻ INCOM SELECT (intercom select) switch
For selectding the intercom line.
ENG: engineer line
PRIVATE: private line
PROD: producer line

❼ PGM MIX (program signal mix) control
For controlling the volume of the program that is input via the INTERCOM connector on the front panel.

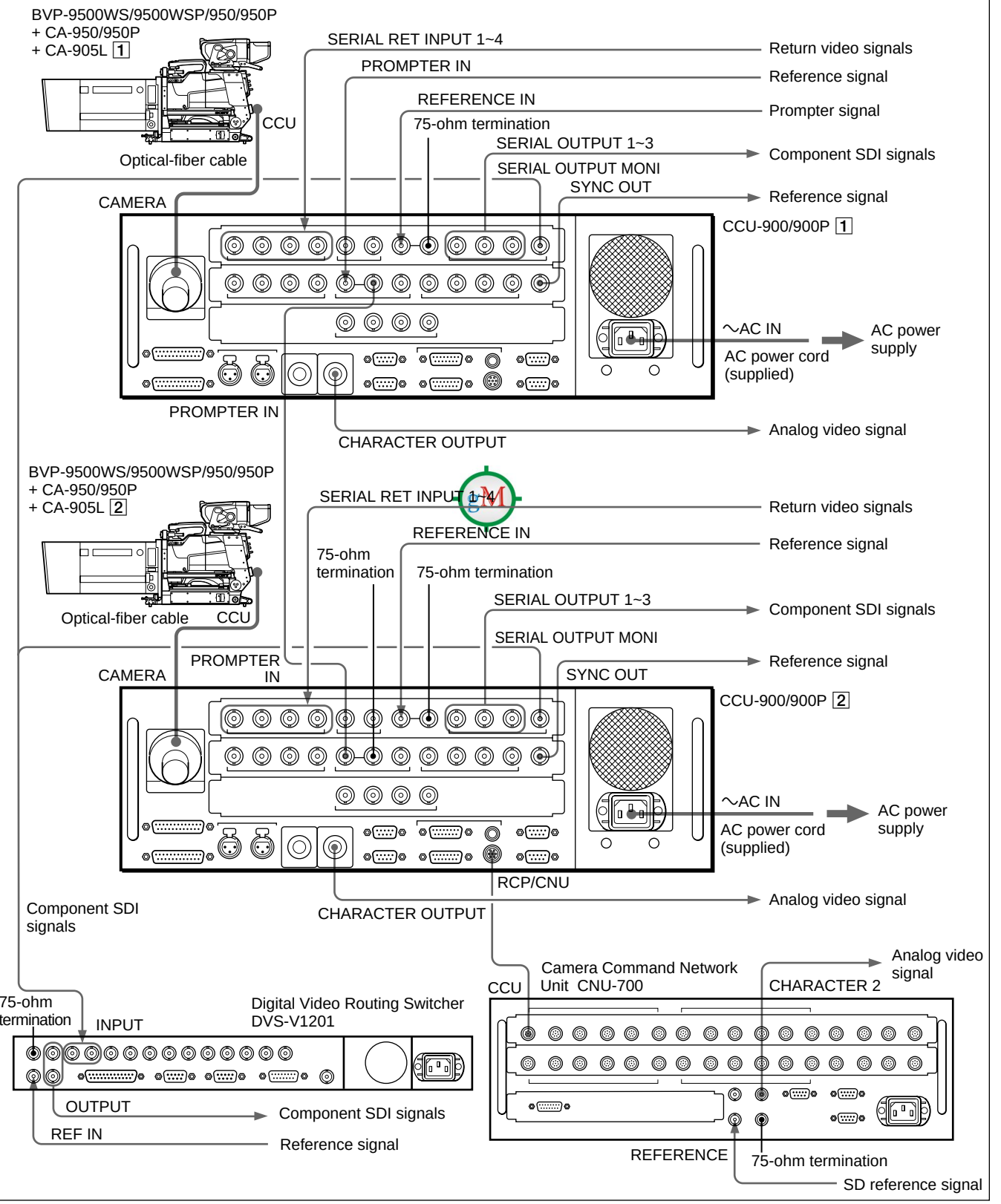
❽ SIDE TONE control
For controlling the volume of the side tone that is input via the INTERCOME connector on the front panel.

❾ RTS CANCEL (ENG) (engineer line RTS cancel) control
For controlling the CANCEL level of the ENG line when the RTS intercom system is used.

❿ RTS CANCEL (PROD) (producer line RTS cancel) control
For controlling the CANCEL level of the PROD line when the RTS intercom system is used.

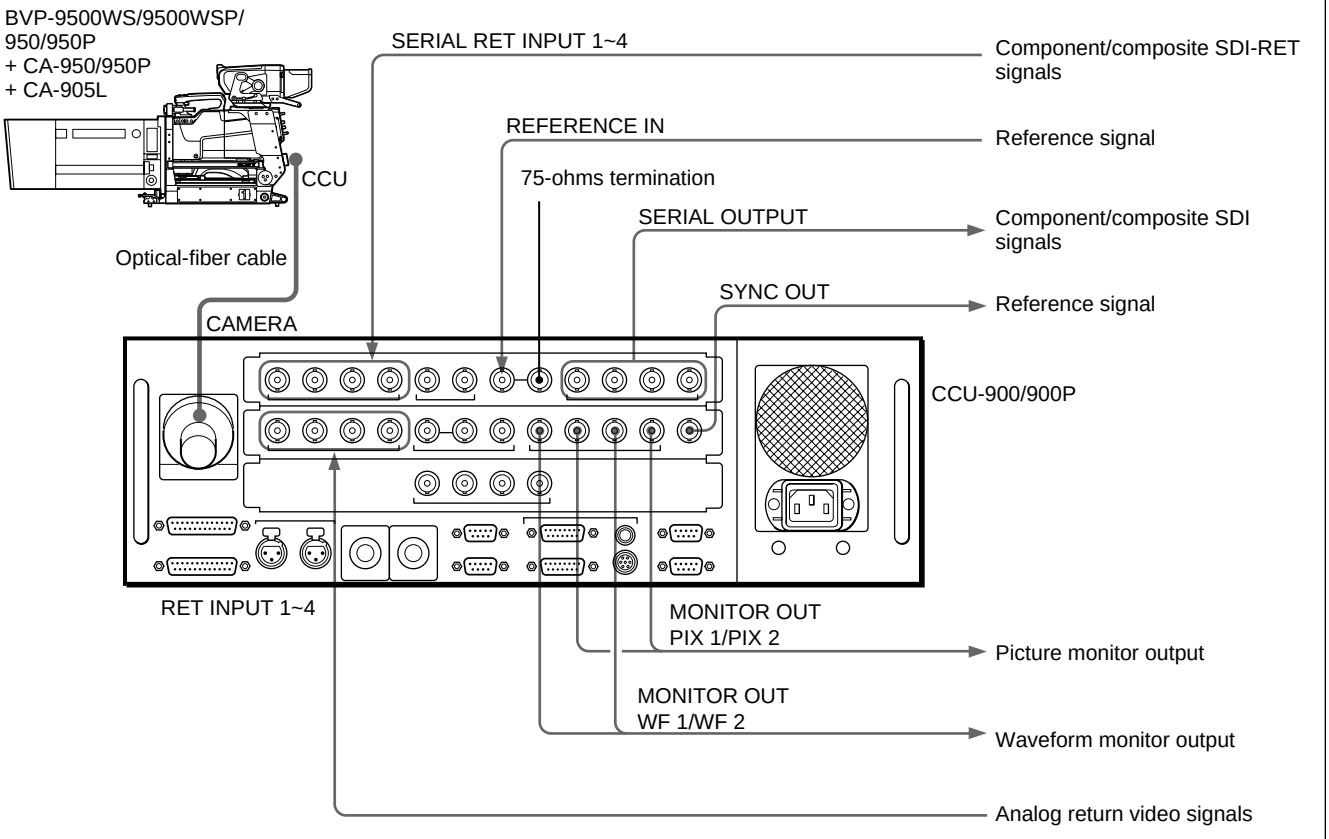
Digital Video Signal Connections

Other than the optical-fiber cables and AC power cords, all cables are 75-ohm coaxial cables with BNC connectors.



Video Signal Connections

Other than the optical-fiber cables and AC power cords, all cables are 75-ohm coaxial cables with BNC connectors.

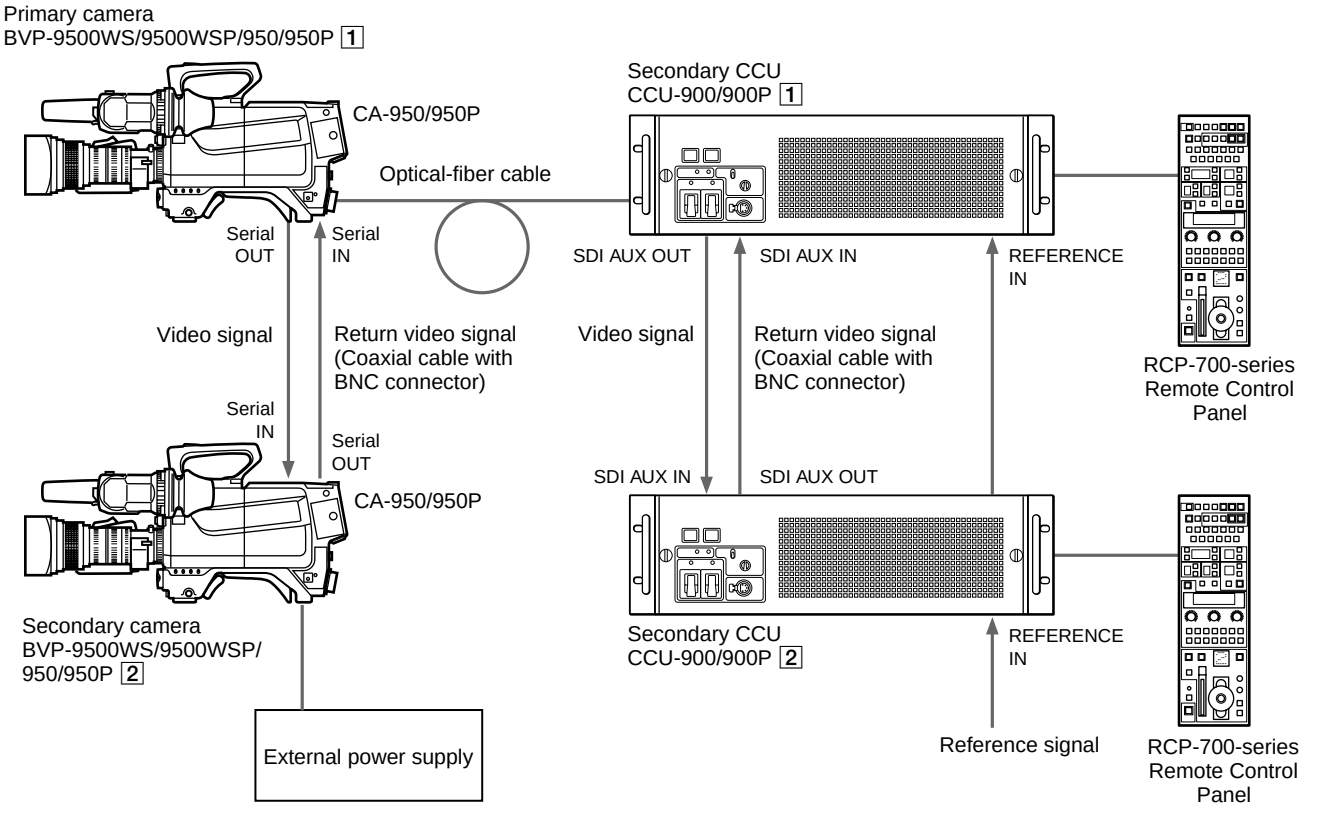


Note

The input signal must be synchronized with the clock of the CCU-900/900P.

Connections for the Dual Camera Operation

Other than the optical-fiber cables, all cables are 75-ohm coaxial cables with BNC connectors.

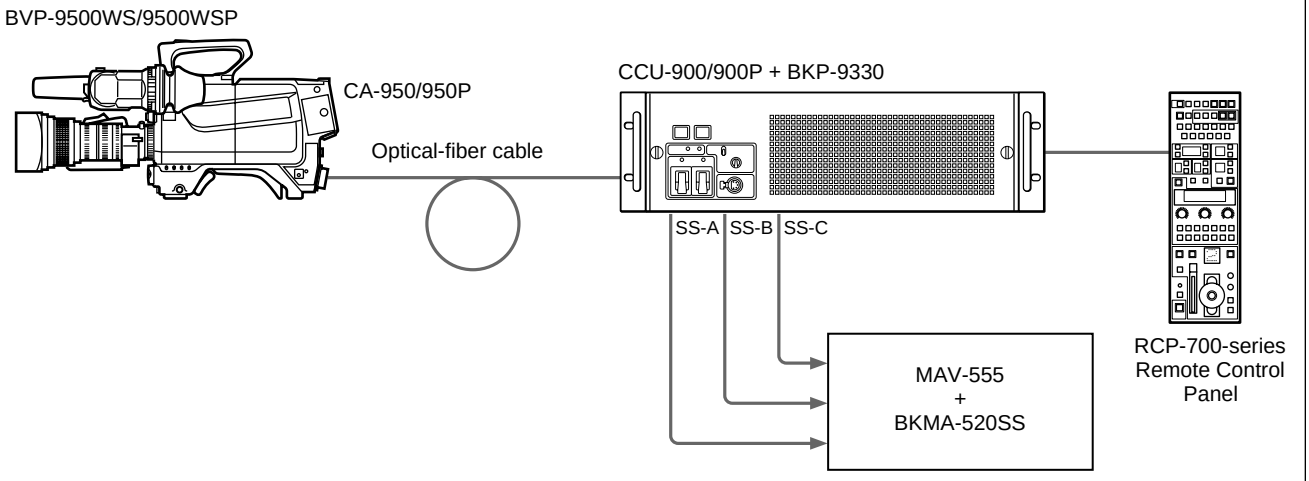


Notes

- The primary system and the secondary system must be gen-locked.
- If the BVP-9500WS/9500WSP is operated at triple speed, dual camera operation is released, and the secondary system cannot be used.

Connections for a Super-Motion Camera (with the BKP-9330)

Other than the optical-fiber cables, all cables are 75-ohm coaxial cables with BNC connectors.



Operation mode of the BVP-9500WS/9500WSP, normal speed (×1) or triple speed (×3), can be selected via the INCOM REMOTE connector on the rear panel. To select the operation mode on the CCU-900/900P, set the signal level at pin 23 of the INCOM REMOTE connector to L. Then the operation mode, normal or triple, can be selected via pin 20 of the INCOM REMOTE connector as shown in the table below. In this case, the selection is enabled on the CCU only.

INCOM REMOTE pin 20 (×1/×3)	**Operation mode of the BVP-9500WS/9500WSP**
H (open)	×1
L	×3

Connections for Control, Intercom, Tally, and Audio Signals

An configuration example is shown in the figure on the next page.

Selecting a waveform monitor

The waveform monitor to be connected to the D-sub 15-pin WF MODE connector of the CCU-900/900P or to the WF MODE connector on the CNU-700 Camera Command Network Unit is a recall type monitor. With a recall-type monitor, the desired display mode can first be set up on the waveform monitor (preset), and the mode can then be selected externally (recall) with the monitor select buttons on the MSU-700A/750 or on the RCP-700-series unit.
The display mode and the monitor select button have the following relations:

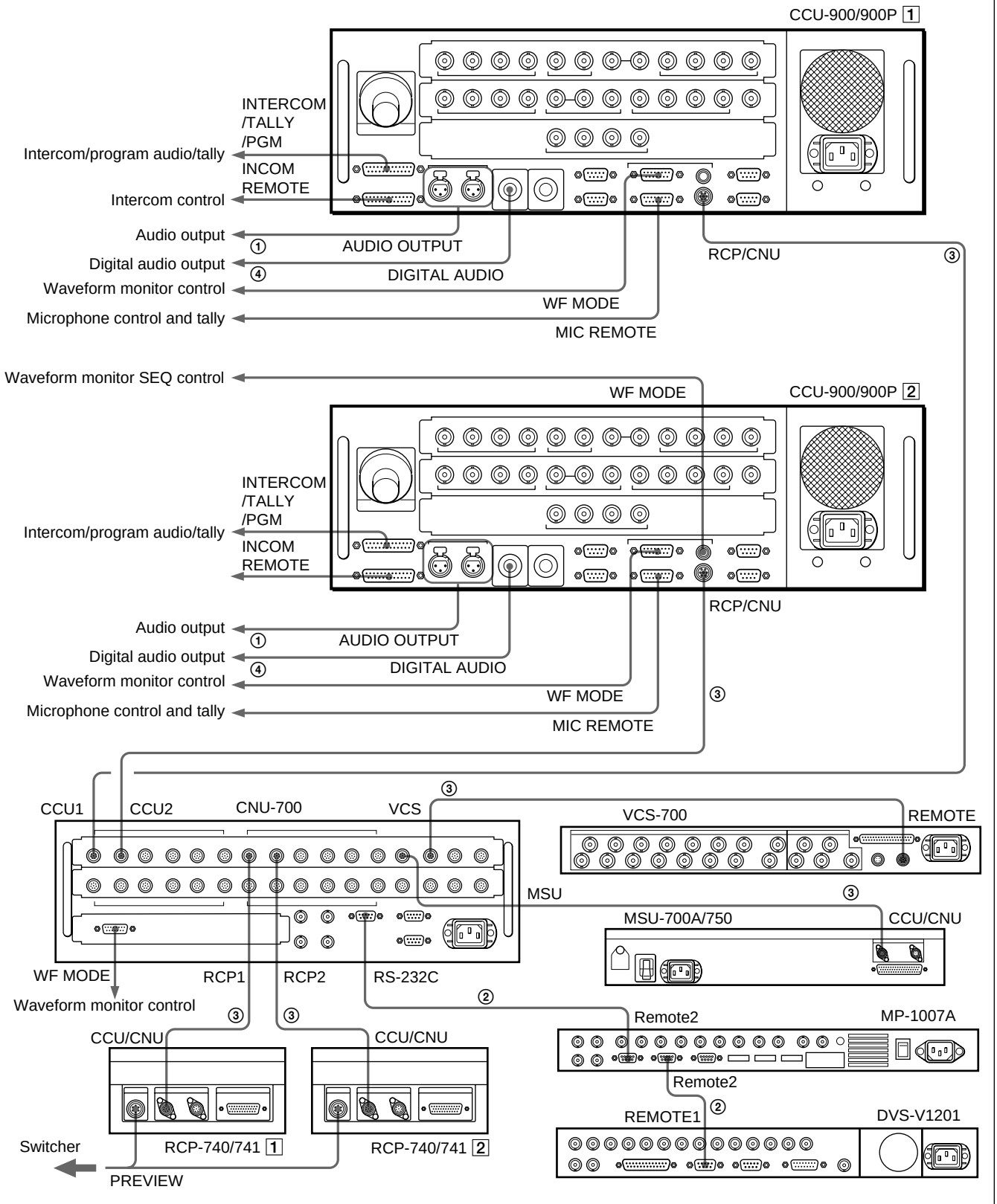
Display mode	Monitor select buttons
PRESET 1	R
PRESET 2	G
PRESET 3	B
PRESET 4	SEQ or R + G + B
PRESET 5	ENC
PRESET 6	R + B
PRESET 7	R + G
PRESET 8	G + B

Using DVS-V1201 SD Digital Video Routing Switchers in a cascade configuration

Set REMOTE 2 unit address switch “5” of the DVS-V1201 SD Digital Video Routing Switcher to ON and all others to OFF. When connecting DVS-V1201 SD Digital Video Routing Switchers in a cascade configuration to be used with 13 or more cameras, set unit address switch “6” of the second unit to ON and the others to OFF.

http://getMANUAL.com

The required cables are ① audio cables with XLR 3-pin plugs, ② D-sub 9-pin remote cables, ③ CCA-5 cables, and ④ 75-ohm coaxial cables with BNC connectors.
For details on cables without number labels, refer to the Service Manual or contact a Sony service representative.



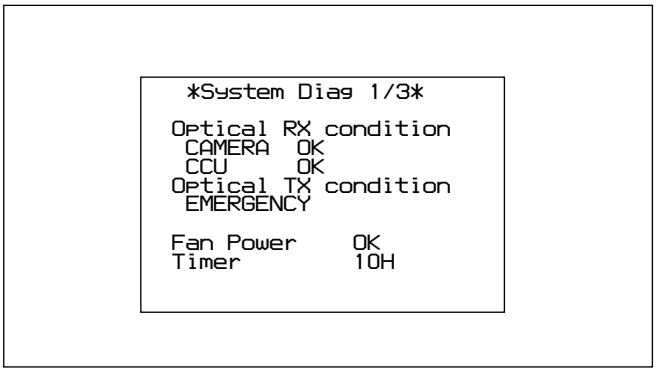
Self-Diagnosis

With the RCP-700-series Remote Control Panel connected, the results of system diagnosis of the internal boards of the CCU-900/900P can be displayed on the monitor.

Self-diagnosis of the camera system

System diagnosis display of the camera system comprises three pages.

System Diag 1/3



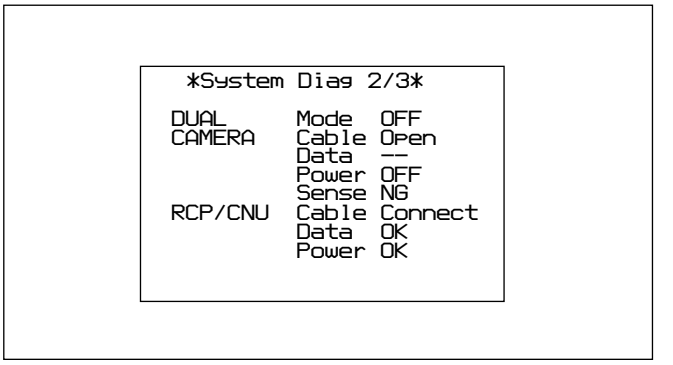
Optical RX condition: condition of optical reception
CAMERA: condition of a camera
CCU: condition of a CCU

The display shows the following levels of optical reception.

Optical reception [dBm]	LED display	CHARA display
–7.5	Green	OK
–10	Green	OK
–15	Green	OK
–17	Yellow	CARE
–20	Red	WARN
–25	Red	WARN
SYNC ERR	Red	NG

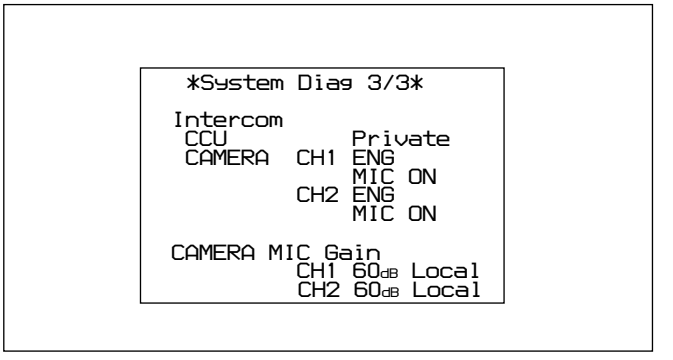
Optical TX Condition: Condition of optical reception
Fan Power: Condition of fans of the power block and rear panel
Timer: Duration of power supply to the AT board

System Diag 2/3



DUAL Mode: Displays the setting of dual camera mode
CAMERA Cable: Status of connection of the camera cable
CAMERA Data: Existence of data from the camera
CAMERA Power: Status of power supply to the camera
CAMERA Sense: Status of connection to the CHU
RCP/CNU Cable: Status of cable connection to the RCP/CNU connector
RCP/CNU Data: Existence of data from the RCP/CNU connector
RCP/CNU Power: Status of power supply to the RCP/CNU connector

System Diag 3/3

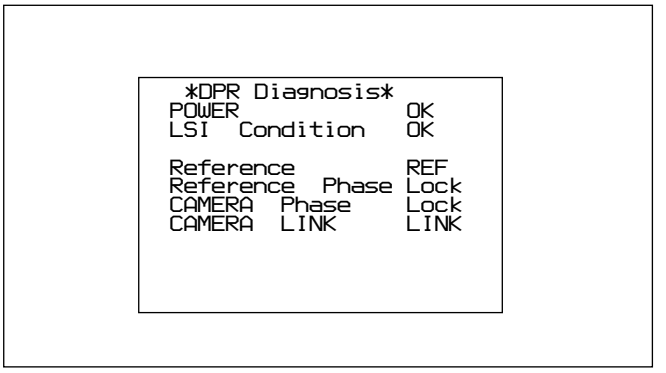


Intercom CCU: Setting of the CCU intercom
Intercom CAMERA CH1: Status of intercom 1 of the camera
Intercom CAMERA CH1 MIC: Status of the microphone of intercom 1 of the camera
Intercom CAMERA CH2: Status of intercom 2 of the camera
Intercom CAMERA CH2 MIC: Status of the microphone of intercom 2 of the camera
CAMERA MIC Gain: Status of gain and control of the microphone circuit of the camera

Self-diagnosis result for internal boards of the CCU-900/900P

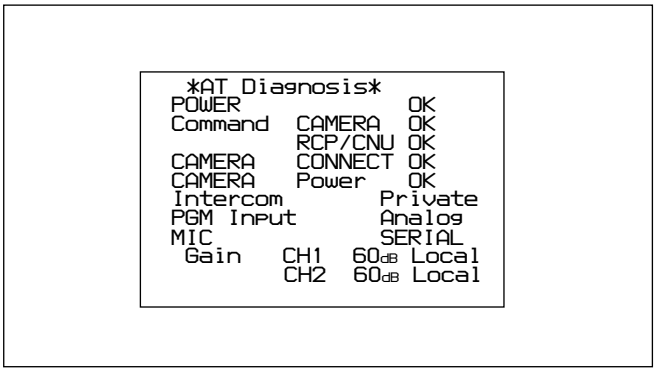
The self-diagnosis results for the internal boards of the CCU-900/900P is displayed by pressing the CHARACTER button of the RCP-700-series Remote Control Panel when the third page of self-diagnosis display of the camera system is on screen.
The diagnosis results for each board will be successively displayed by further pressing the CHARACTER button.

DPR Board



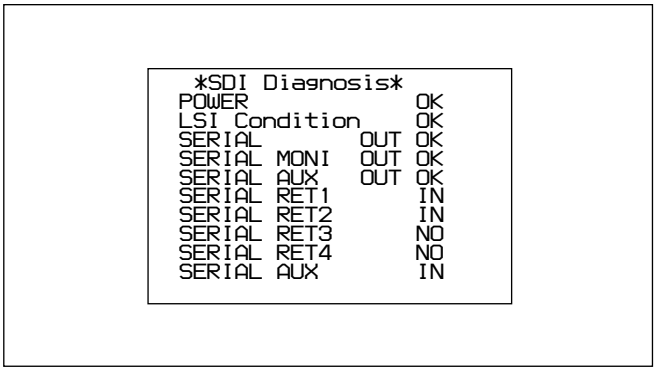
POWER: Operational status of the board regulator
LSI Condition: Setting status of the LSI
Reference: Reference signal source
Reference Phase: State of lock to the reference signal
CAMERA Phase: State of lock phase of the camera signals
CAMERA LINK: Linkage status of camera command

AT Board



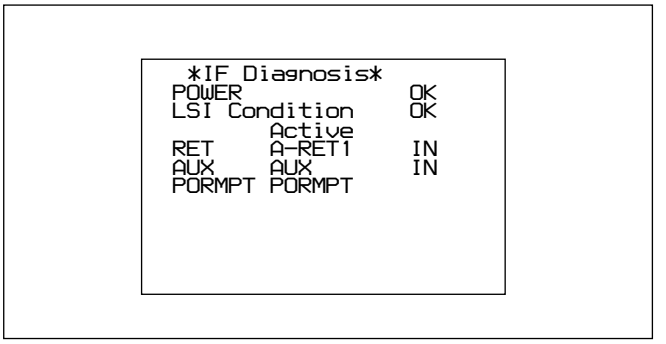
POWER: Operational status of the board regulator
Command CAMERA: Linkage status with the camera
Command RCP/CNU: Linkage status with the RCP-700-series unit or the CNU-700/500
CAMERA CONNECT: Detection of connection with the camera
CAMERA Power: Detection of power supply to the camera
Intercom: Setting of the intercom switch
PGM Input: Input condition of the program
MIC Gain: Setting of microphone gain and control

SDI Board



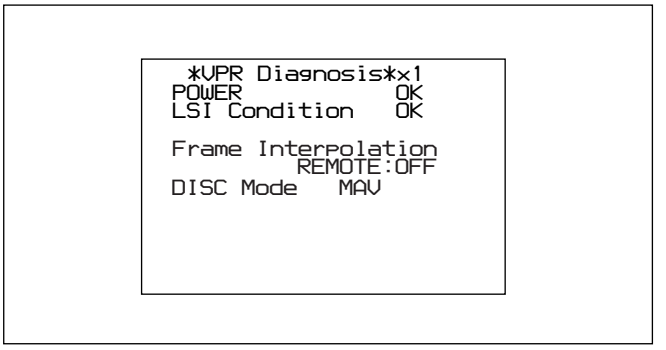
POWER: Operational status of the board regulator
LSI Condition: Setting status of the LSI
SERIAL OUT: PLL output status of the SDI signal
SERIAL MONI OUT: Output status of the SDI picture monitor signal
SERIAL AUX OUT: Output statusn of the SDI AUX signal
SERIAL RET1: Existence of input from the SDI RET1 signal
SERIAL RET2: Existence of input from the SDI RET2 signal
SERIAL RET3: Existence of input from the SDI RET3 signal
SERIAL RET4: Existence of input from the SDI RET4 signal
SERIAL AUX: Existence of input from the SDI AUX signal

IF Board



POWER: Operational status of the board regulator
LSI Condition: Setting status of the LSI
Active: Existence of an active input route
RET: Active RET signal route
AUX: Active AUX signal route
PROMPT: Active PROMPTER signal route

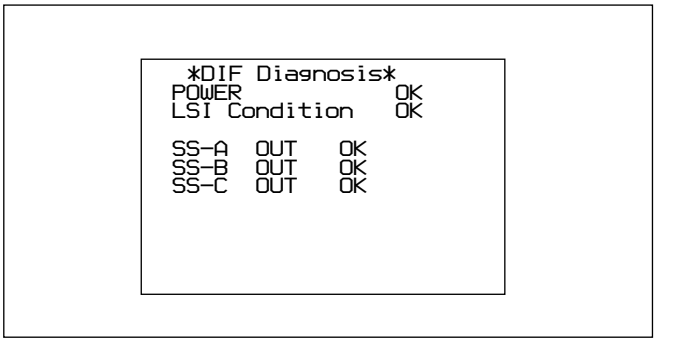
VPR Board



POWER: Operational status of the board regulator
LSI Condition: Setting status of the LSI
Frame Interpolation: Setting status of output picture composition on the VPR board
DISC Mode: Setting status of output format of the SS-A/SS-B/SS-C connectors

This display does not appear if no VPR-57 board is installed.
A maximum of 3 pages of self-diagnosis, depending on the number of boards installed is displayed for the boards not supplied.

DIF Board



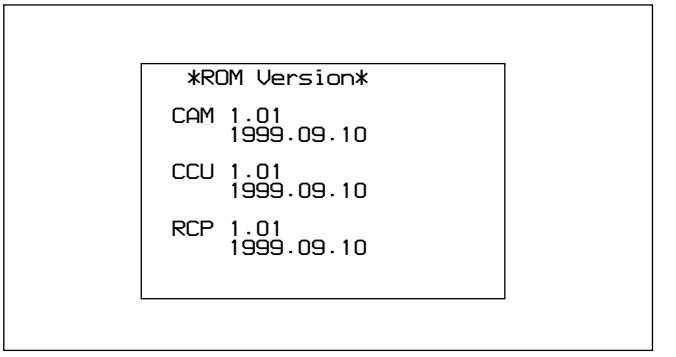
POWER: Operational status of the board regulator
LSI Condition: Setting status of LSI
SS-A OUT: Output status of SDI-A signal
SS-B OUT: Output statusn of SDI-B signal
SS-C OUT: Output status of SDI-C signal

This display does not appear if no DIF-38 board is installed.

CAMERA Diagnosis

The board DIAG display transmitted by the DIAG command is displayed as is.

ROM Version



CAM: Displays the ROM version of the camera head
CCU: Displays the ROM version of CCU
RCP: Displays the ROM version of RCP

Specifications

CCU-900/900P

General

Power supply 100/110-120/220-240 V AC, 50/60 Hz
(To change to a different power supply, contact a Sony service representative.)

Current consumption
5 A (at 100 V AC, entire system active)

Peak inrush current
(1) Power ON, current probe method: 80 A (240 V)
60 A (100 V)
(2) Hot switching inrush current, measured in accordance with European standard EN55103-1: 10 A (230 V)

Operating temperature
5°C to 40°C (41°F to 104°F)

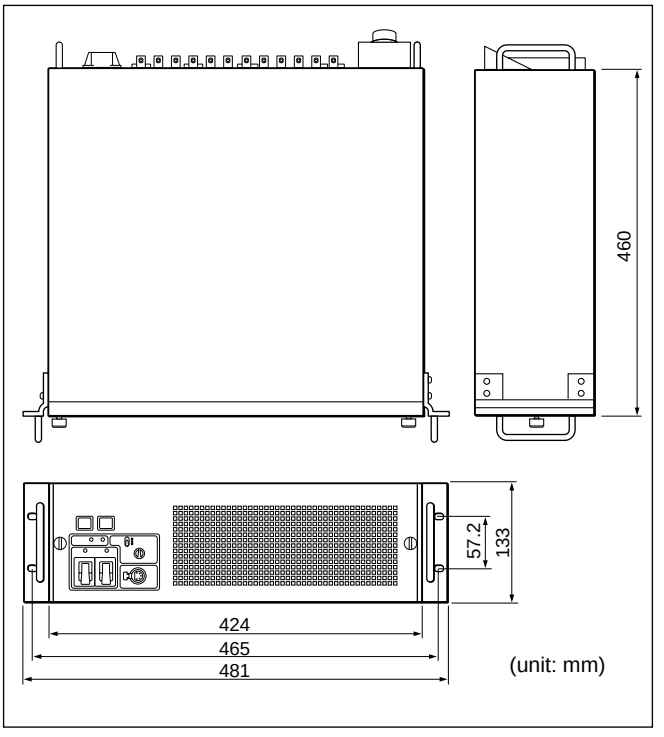
Storage temperature
–20°C to +60°C (–4°F to +140°F)

Humidity no condensation

Dimensions (w/h/d)
Approx. 424 × 133 × 460 mm
(16 3/4 in × 5 1/4 × 18 1/8 inches)

Mass Approx. 20 kg (44 lb 1 oz)

Dimensions



Environment for installing and using the equipment

- Avoid rooms of high temperature or placing near a heat source.
- Avoid a place with strong electric or magnetic field.
- Set in a cool, dry place.
- Keep out of direct sunlight or other strong light.

Input/Output connectors

CAMERA Optical-fiber connector (1)
1.08Gb/s SDI × 2, 240 V AC power supply

INCOM/TALLY/PGM
D-sub 25-pin connector (1)
- INCOM-4W, 2 systems (PD/ENG), 0 dB
- PGM, 2 systems, 0 dB/–20 dB
- TALLY (R, G), TALLY contact

INCOM REMOTE
D-sub 25-pin (1)

RCP/CNU 8-pin multiconnector (1)

TRUNK LINE 1/TRUNK LINE 2
D-sub 9-pin, female (1)
RS-232C, for CHU transmission

AUX 1/AUX 2 D-sub 9-pin, female (1)
RS-422, for CCU system expansion

Input connectors

AC IN 100 to 120, 220 to 240 V AC switchable

PROMPTER IN BNC-type (1), with loop-through output, SMPTE-292M analog signal,
1.0 Vp-p, 75-ohms

SERIAL RET INPUT
BNC-type (4), SMPTE-259M,
0.8 Vp-p, 75 ohms,
270Mb/s bit rate

REFERENCE IN BNC-type (1), with loop-through output, composite SYNC/VS

RET INPUT BNC-type (4), 1.0 Vp-p, 75 ohms, analog signal

AUX IN BNC-type (1)
SDI video signal
0.8 Vp-p, 75 ohms,
270Mb/s bit rate

Output connectors

AUDIO OUT	XLR 3-pin, male (2), 0 dBs/–20 dBs
CHARACTER	BNC-type (1), 525 black and white 210 mVp-p (characters) 300 mVp-p (sync)
MIC REMOTE	D-sub 15-pin, female (1)
WF MODE	D-sub 15-pin, female (1)
SERIAL OUTPUT	BNC-type (4), SMPTE-259M, 0.8 Vp-p, 75 ohms, 270Mb/s bit rate
SYNC OUT	BNC-type (1), composite sync, 0.286 Vp-p, 75 ohms
MONITOR OUT PIX 1/PIX 2	BNC-type (1), 1.0 Vp-p, 75 ohms, R/G/B/ENC
MONITOR OUT WF 1/WF 2	BNC-type (1), 1.0 Vp-p, 75 ohms, R/G/B/ENC/SEQ
WF MODE	4-pin multiconnector (1) stairstep
AUX OUT	BNC-type (1) SDI signal, 0.8 Vp-p, 75 ohms, 270Mbps bit rate
PROMPTER OUT	BNC-type (1) 1.0 Vp-p, 75 ohms
SERIAL OUTPUT MONI	BNC-type (1) SDI signal, 0.8 Vp-p, 75 ohms, 270Mbps bit rate
DIGITAL AUDIO	BNC-type (1) AES/EBU format

Supplied accessories

AC power cord (1)
Power cord plug holder (1)
4-pin connector (1)
Number plates (1 set)
Fuses (1 set)
Operation manual (1)
Maintenance manual (1)
Voltage indication label (1)

Optional accessories

FC2-PD50 Optical Fiber Cable (50 meter/164 feet)
FC2-PD250 Optical Fiber Cable (250 meter/820 feet)
CCA-5-3 Connection Cable (3 meter/10 feet)
CCA-5-10 Connection Cable (10 meter/33 feet)
BKP-7900 Expansion Board
BKP-9330 Optional Board

Related equipment

BVP-9500WS/9500WSP Super Motion Camera
BVP-950/950P Color Video Camera
CA-950/950P Camera Adapter
CA-905L Studio Build-up Unit
RCP-700-series Remote Control Panel
MSU-700A/750 Master Setup Unit
VCS-700 Video Selector
CNU-700/500 Camera Command Network Unit
MAV-555 Multi Access Video Disk Recorder
BKMA-520SS Super Motion Input Board

Design and specifications are subject to change without notice.

BKP-9330 (optional)

Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Dimensions (w/h/d)	
VPR-57 board:	Approx. 230 × 17 × 309 mm ($9^{1}/_{8} \times {}^{11}/_{16} \times 12^{1}/_{4}$ inches)
DIR-38 board:	Approx. 213 × 28 × 94 mm ($8^{1}/_{2} \times 1^{1}/_{8} \times 3^{3}/_{4}$ inches)
Mass	Approx. 1.4 kg (2 lb 5 oz)
SERIAL OUT	BNC-type, SMPTE-259M, 270Mb/s bit rate

Design and specifications are subject to change without notice.

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Sony Corporation
Communication System Solutions Network Company

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